

1. Technical Rules

a. Channel Assignment and Service Area

84. In the *Further Notice*, we observed that there is significant variation among both Part 22 and Part 90 mobile radio services in our regulations governing the amount of spectrum assigned to and the geographic area to be served by each licensee. We accordingly identified as a key goal of this proceeding the determination of whether our channel assignment rules should be revised so that reclassified Part 90 services are treated in a comparable manner to “substantially similar” common carrier services.

(1) 800 MHz SMR

(a) Background and Pleadings

85. The *Further Notice* sought comment on whether our channel assignment rules for 800 MHz SMR should be revised to facilitate licensing on a wide-area basis comparable to our licensing of cellular and broadband PCS spectrum.¹⁶⁸ We observed that SMR licensees attempting to construct wide-area multi-channel systems under our existing rules face significant competitive obstacles because channel assignment is on a station-by-station, channel-by-channel basis. On the other hand, we noted that many SMR licensees operate traditional dispatch systems that do not require wide-area, multi-channel assignments. Because of the varied nature of 800 MHz SMR services, we sought comment on how to ensure that rule changes intended to eliminate obstacles to wide-area licensing would not disrupt other segments of the SMR industry and the services they provide.¹⁶⁹

86. The *Further Notice* also sought specific comment on the continued viability of our MTA-based licensing proposal originally proposed in the *800 MHz EMSP Notice*.¹⁷⁰ We tentatively concluded in the *Further Notice* that a wide-area alternative was both feasible and consistent with the goal of achieving comparable technical rules for substantially similar services. In light of the fact that the 800 MHz SMR band is heavily occupied, however, we sought comment on whether the amount of available spectrum was sufficient to support MTA-based multi-channel licensing or whether some other alternative, such as licensing based on self-defined service areas, should be considered.¹⁷¹

¹⁶⁸ *Further Notice*, 9 FCC Rcd at 2870 (para. 29).

¹⁶⁹ *Id.* (para. 30).

¹⁷⁰ *Id.* (para. 31). See Amendment of Part 90 of the Commission’s Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, Notice of Proposed Rule Making, PR Docket No. 93-144, 8 FCC Rcd 3950 (1993) (*800 MHz EMSP Notice*).

¹⁷¹ *Further Notice*, 9 FCC Rcd at 2870-71 (paras. 32-33).

87. The comments broadly support establishment of a wide-area licensing scheme for 800 MHz SMR systems to enhance their ability to compete with cellular and broadband PCS. AMTA, for example, states that wide-area SMR systems will provide a service substantially similar to cellular and that therefore the Commission should “endeavor to craft technical and operational rules for this service which will ensure that it will not be ‘regulatorily impaired’ in the marketplace.”¹⁷² Pittencrieff similarly asserts site-specific, channel-by-channel licensing of SMR systems is “an inefficient method of licensing” that places wide-area SMR licensees at a “serious disadvantage in the marketplace when competing with cellular and PCS systems.”¹⁷³

88. The comments reflect some disagreement, however, as to whether wide-area licensing should be based on licensee-defined or Commission-defined service areas. PCC favors licensee-defined areas, arguing that this approach combined with a “take-back” mechanism for unconstructed areas would result in efficient spectrum utilization.¹⁷⁴ Southwestern Bell, on the other hand, opposes licensee-defined service areas on the grounds that it would provide an unfair competitive advantage to wide-area SMR operators over cellular and PCS carriers, who may only serve “pre-defined” service areas.¹⁷⁵ OneComm also favors Commission-defined areas of operation, noting that the “cumbersome licensing procedures that are in place for SMRs and ESMRs today encourage the filing of massive numbers of applications by operators attempting to protect their systems from interference from others” and that a geographically-based licensing scheme would solve this problem and enable the Commission to more efficiently utilize its resources.¹⁷⁶ AMTA supports the use of MTA-wide authorizations, observing that objectively defined geographic boundaries “will enable licensees to know with certainty from the outset within which specific area they are entitled to the use of [their] . . . channels.”¹⁷⁷

89. While many commenters favor wide-area licensing, many also stress that any such plan must take into account the needs of other segments of the SMR industry. United States Sugar recommends that we retain our existing channel assignment rules for traditional SMR systems while establishing a different licensing mechanism for licensees who wish to provide multi-channel, wide-area service, and suggests that any new rules take into account the

¹⁷² AMTA Comments at 14.

¹⁷³ Pittencrieff Comments at 5.

¹⁷⁴ PCC Comments at 5.

¹⁷⁵ Southwestern Bell Comments at 9.

¹⁷⁶ OneComm Comments at 4-5.

¹⁷⁷ AMTA Reply Comments at 19.

“expansion needs of traditional SMRs.”¹⁷⁸ RMR notes that “traditional SMRs . . . will likely continue to team up with each other in order to be more competitive,”¹⁷⁹ and that “[t]o the extent the traditional SMR is able to obtain, or form alliances with other SMR operators to mass the necessary frequencies to implement a pseudo-wide-area system, it should be allowed to do so.”¹⁸⁰ Finally, NABER believes that one of the goals of a service-area based licensing approach should be to enable small SMRs to “continue to operate and have access to spectrum for growth where available.”¹⁸¹

90. Many of the comments regarding 800 MHz SMR focus on a specific plan for wide-area licensing introduced by Nextel in its initial comments, and somewhat modified in its reply comments.¹⁸² Nextel proposes that we establish a contiguous 10 MHz channel block of 200 SMR channels (Channels 401 to 600) for exclusive use by a single wide-area SMR licensee in each MTA. Nextel argues that this amount of spectrum is the minimum necessary to provide wide-area SMRs with a broadband allocation comparable to that available to cellular providers.¹⁸³ Nextel further argues that the assignment of contiguous channels is essential for the introduction of broadband technologies, such as spread spectrum, which it contends are only feasible for licensees with contiguous blocks of spectrum.¹⁸⁴ To clear the 200-channel block for wide-area use, Nextel proposes that existing SMR stations on these channels be required to “retune” their equipment to operate on other 800 MHz channels for which SMRs are eligible. The cost of retuning, which Nextel claims would not be

¹⁷⁸ US Sugar Comments at 10.

¹⁷⁹ RMR Comments at 4.

¹⁸⁰ RMR Reply Comments at 17.

¹⁸¹ NABER Comments at 13.

¹⁸² In its initial comments, Nextel proposed that eligibility for each MTA license should be limited to existing SMR licensees who had received wide-area authorizations as of August 10, 1994. If more than one licensee in an MTA qualified under this standard, qualified licensees would have three months to negotiate the selection of a single MTA licensee or the Commission would assign channels on a pro-rated basis according to the number of mobiles served by each licensee. Nextel Comments at 17-18. In its reply comments, Nextel revised its plan by proposing that: (1) only one wide-area SMR license be awarded in each MTA; (2) no time limit be placed on negotiations among eligible licensees; and (3) if the various eligible parties within an MTA were unable to agree on a single entity that would hold the MTA license, they would continue to operate under their existing licenses and no MTA license would be awarded. Nextel Reply Comments at 13.

¹⁸³ Nextel Comments at 11.

¹⁸⁴ Nextel Reply Comments at 16.

significant, would be paid by the wide-area licensee, and no licensee would be forced to move off its frequencies unless acceptable alternative frequencies were available.¹⁸⁵

91. The Nextel plan elicited widespread comment both in favor and in opposition to the proposal. AMTA, Dial Page, CellCall, and OneComm support the Nextel plan as revised in the reply comments. These commenters stress the importance to wide-area SMR licensees of obtaining a clear, contiguous band of spectrum if they are to compete against cellular and broadband PCS licensees with even larger spectrum blocks. OneComm further requests that wide-area SMRs not be excluded from access to SMR channels other than the 200 channels in the "MTA block." OneComm notes that these additional channels may be necessary either for wide-area operations or for retuning co-channel licensees.¹⁸⁶

92. Numerous commenters, including many operators of smaller SMR systems, oppose the Nextel plan. PCC asserts that the demand for wide-area SMR service does not justify the allocation of 200 channels to a single licensee, and that opportunities should exist for more than one new entity in an MTA to provide wide-area SMR services.¹⁸⁷ Action similarly comments that Nextel should be required to compete with other applicants to provide wide-area service, and that auctions should be used to select wide-area licensees where applications are found to be mutually exclusive.¹⁸⁸ T&K expresses concern that adoption of the Nextel proposal will jeopardize its pending application for frequencies in the "MTA block,"¹⁸⁹ while JMTV indicates that removing smaller SMR systems to lower frequencies would deprive them of the ability to build "enhanced" systems to compete with larger firms such as Nextel.¹⁹⁰

93. The most vigorous objections to Nextel's plan concern the proposal that existing licensees in the "MTA block" of 200 channels be required to move to other frequencies. Eden argues that Nextel has failed to address the practical problems to be encountered by these licensees "in terms of equipment replacement, management agreements, renegotiation of site leases," and the like.¹⁹¹ Ericsson contends that there are no 800 MHz trunked SMR channels available in most markets and that SMR operators who are required to retune would

¹⁸⁵ Nextel Comments at 11-12.

¹⁸⁶ OneComm Reply Comments at 6-7.

¹⁸⁷ PCC Reply Comments at 4-5.

¹⁸⁸ Action Reply Comments at 3.

¹⁸⁹ T&K Reply Comments at 3.

¹⁹⁰ JMTV Reply Comments at 1.

¹⁹¹ Eden Comments at 3.

therefore be forced to compete for a limited number of conventional SMR channels.¹⁹² Finally, NABER opposes mandatory relocation (although it supports other aspects of the Nextel plan) on the grounds that insufficient alternative spectrum is available and that mandatory relocation would impair the ability of small existing analog SMR systems to convert to wide-area operation.¹⁹³

(b) Discussion

94. Based on our earlier analysis of “substantially similar” services (*see* Section III.B, *supra*), we conclude that 800 MHz SMR licensees compete or have the potential to compete with existing wide-area CMRS service providers. We further conclude that we should modify our existing channel assignment rules and service area definitions, to the extent practicable, to permit 800 MHz SMR licensing on a wide-area basis because we have determined that such licensing will promote competition between 800 MHz SMR licensees and other CMRS licensees. We also conclude that any wide-area licensing plan must take into account the interests of existing and future SMR systems that do not seek to provide wide-area service. In this regard, we have decided that some form of wide-area licensing based on MTAs should be implemented for 800 MHz SMR service. Based on the variety of comments addressed to 800 MHz service in this proceeding, however, we believe that further comment should be solicited on certain issues relating to 800 MHz licensing before we adopt final rules. We therefore address in turn our conclusions reached in this proceeding regarding 800 MHz service and those issues on which we intend to seek further comment.

(i) Conclusions

(A) Rationale for Wide-Area Licensing

95. The record provides strong support for a more flexible licensing scheme than is currently in use in order for SMR to compete effectively with cellular and PCS. Our licensing rules for PCS and cellular are based on the following elements: (1) large Commission-defined service areas, (2) assignment of contiguous spectrum blocks to a single licensee on an exclusive basis, (3) use of construction and coverage requirements rather than loading requirements to ensure efficient use of the spectrum, and (4) technical and operational rules that afford maximum flexibility to locate, design, construct, and modify facilities within one’s licensing area, so long as no interference is caused to other licensees.

96. None of these elements is currently present in our SMR rules. SMR licensees seeking to construct wide-area systems must obtain authorizations on a station-by-station basis, do not necessarily receive contiguous channels, are subject to loading requirements,

¹⁹² Ericsson Comments at 3-4.

¹⁹³ NABER Comments at 11.

and must apply to the Commission for permission to make even relatively minor modifications to their systems. Thus, while we have authorized the development of wide-area SMR systems under these rules, SMR applicants must overcome many more regulatory obstacles than PCS and cellular providers in order to obtain such authorizations and construct their systems.¹⁹⁴ In addition, the patchwork nature of past licensing in the 800 MHz band means that SMR licensees who have obtained wide-area authorizations will not necessarily be able to operate on a contiguous block of spectrum throughout a defined service area.

97. In the *800 MHz EMSP Notice*, we proposed to address the obstacles facing wide-area SMR systems by means of a wide-area licensing scheme that would allow licensees to acquire an identified block of channels within an MTA under a single authorization to the extent such channels were available.¹⁹⁵ Based on the record of our *800 MHz EMSP* docket and additional comments received in response to the *Further Notice*, we conclude that implementing wide area licensing on this basis would promote competition between SMR licensees and other wide-area CMRS providers. Assigning channel blocks in Commission-defined service areas eliminates the need for many of the complicated and burdensome licensing procedures that have hampered SMR development in the past. This approach also furthers the Congressional goal of ensuring comparable regulation for substantially similar services, because 800 MHz SMR providers compete or have the potential to compete with other CMRS providers who are licensed in Commission-defined areas. Accordingly, we conclude that wide-area licenses should be used in the 800 MHz band, authorizing the licensee to construct stations anywhere in its specified service area on any authorized channels that are available for construction. Subject to certain conditions specified below, the wide-area licenses will also enable the licensee to "self-coordinate" system modifications within its service areas, such as additional stations or changes to existing stations, without the need for prior Commission approval. This simplified approach toward licensing will enable MTA licensees to implement their systems in the least burdensome manner possible.

¹⁹⁴ Currently, wide-area SMR systems are licensed pursuant to Section 90.631(c), which requires applicants seeking additional trunked channels to demonstrate that they have achieved a loading level of 70 mobiles per channel on their existing channels. Under the criteria set forth in our *Fleet Call* decision and a 1993 Private Radio Bureau letter, wide-area applicants may meet this loading requirement by a showing of "aggregate loading" of their existing licensed channels, thereby acquiring additional channels that would ordinarily not be available through a strict interpretation of our "40 mile rule" and our rule that limits applicants to obtaining five channels at one time. See Request of Fleet Call, Inc., for Waiver and Other Relief To Permit Creation of Enhanced Specialized Mobile Radio Systems in Six Markets, File No. LMK-90036, Memorandum Opinion and Order, 6 FCC Rcd 1533 (1991); Letter from R. Haller, Chief, Private Radio Bureau, FCC, to D. Weisman, DA 92-1734, 8 FCC Rcd 143 (1993). In addition, applicants seeking an extended construction period to construct wide-area systems must make an affirmative showing under our extended implementation rules. See 47 CFR § 90.629.

¹⁹⁵ *800 MHz EMSP Notice*, 8 FCC Rcd at 3954-57 (paras. 20-32).

(B) Service Area

98. In the 800 MHz EMSP Notice, we proposed to use either Major Trading Areas (MTAs) or Basic Trading Areas (BTAs) as the basis for wide-area licensing.¹⁹⁶ In the *Further Notice*, we sought comment on whether Commission-defined service areas continued to be viable in light of the high level of occupancy and ongoing licensing of 800 MHz SMR frequencies or whether licensee-defined areas should be used. Upon review of the comments in both proceedings, we believe the weight of the record supports adoption of MTA-based service areas.¹⁹⁷ Although some commenters support the view that licensee-defined service areas should be used because of the limits on available channels, we conclude that standard Commission-defined areas are simpler to administer, will provide licensees and the public with greater certainty about what area is covered by each authorization, and will make it easier to resolve conflicts between applicants seeking to provide service to a common area.

99. We also conclude that the use of MTA-based service areas, identical to those we adopted for PCS, for wide-area licensing of 800 MHz SMR is preferable to using BTAs or other, smaller Commission-defined areas.¹⁹⁸ We agree with the view expressed by Nextel that an MTA-defined service area is "large enough that it allows for economies of scale, represents the natural commercial markets within the United States, facilitates roaming, [and] reduces the need for interference coordination"¹⁹⁹ Allowing licensees to operate over MTAs as opposed to smaller areas will enhance their ability to invest in technology and to

¹⁹⁶ *Id.* at 3953 (para. 15). Rand McNally organizes the 50 states and the District of Columbia into 47 MTAs and 487 BTAs. See Rand McNally, Inc., *COMMERCIAL ATLAS AND MARKETING GUIDE* 38-39 (1992).

¹⁹⁷ We note that Rand McNally & Company is the copyright owner of the MTA/BTA Listings, which list the BTAs contained in each MTA and the counties within each BTA, as embodied in Rand McNally's Trading Area System MTA/BTA Diskette, and geographically represented in the map contained in Rand McNally's *Commercial Atlas & Marketing Guide*. The conditional use of Rand McNally's copyrighted material by interested persons is authorized under a blanket license agreement dated February 10, 1994. This agreement covers the 800 MHz SMR service and requires authorized users of the material to include a legend on reproductions (as specified in the license agreement) indicating Rand McNally's ownership. See Amendment of the Commission's Rules To Establish New Personal Communications Services, GEN Docket No. 90-314, Memorandum Opinion and Order, FCC 94-144, released June 13, 1994, at para. 24 nn. 23 & 24 (*Broadband PCS Reconsideration Order*).

¹⁹⁸ In addition to the 47 Rand McNally MTAs, we establish three licensing regions to cover United States territories as follows: Guam and the Northern Mariana Islands will be licensed as a single area, Puerto Rico and the U.S. Virgin Islands as a single area, and American Samoa as a single area. We will also license Alaska as a single area separate from the Seattle MTA. This is consistent with our MTA-based service area definitions for broadband PCS. See 47 CFR § 24.102.

¹⁹⁹ Nextel Comments at 15.

re-use their channels more effectively. In addition, many of the authorizations already granted to SMR licensees for wide-area systems are for MTA-sized areas or for regions larger than a single MTA. Thus, MTAs appear to be the most suitable “building blocks” for SMR licensees who seek to construct wide-area systems. Finally, MTA licensing is likely to be more practical if we decide that, as discussed below, wide-area licensees should be required to afford protection to incumbent co-channel licensees within their service areas. Because the number of incumbent licensees may be significant in many markets, we believe that using smaller service areas than MTAs could cause many of these licenses to have little practical utility or value.

(ii) *Further Notice Issues*

100. While we conclude that the record provides substantial evidence to support our conclusion that 800 MHz SMR systems should be licensed on an MTA basis, the comments raise many questions regarding which channels should be subject to wide-area licensing and how incumbent systems on such channels should be treated. Specifically, many of these comments focus on Nextel’s proposal to designate the upper 200 SMR channels in the 800 MHz band for MTA-based licensing and to require non-MTA licensees on these channels to move to other frequencies. Given the importance of these issues to the SMR industry, we believe the best course is to seek further comment on them in our *800 MHz EMSP* docket, and we will therefore shortly be issuing a further notice of proposed rule making to that effect. We believe, however, that the existing record supports certain tentative conclusions regarding these issues. Accordingly, we briefly summarize these preliminary views here, although we emphasize that interested parties will have the opportunity to address these issues further in the upcoming rule making.²⁰⁰

(A) Channel Blocks

101. Most commenters agree that for wide-area SMR systems to compete in the CMRS market, they must have the ability to use (and reuse) a large number of channels, preferably on contiguous frequencies. In the *800 MHz EMSP Notice*, we proposed to allow wide-area licensees to acquire up to 42 unconstructed channels at a time in an MTA. This number reflected the minimum number of channels needed to construct a system based on MIRS technology, commonly used by SMR systems, with the capacity to employ frequency reuse. In the *Further Notice*, we sought comment on this and other alternatives for the number of SMR channels to be licensed on a wide-area basis.

102. In response to the *Further Notice*, Nextel proposes that we set aside 200 channels for use by a single wide-area licensee. Nextel notes that this allocation, which

²⁰⁰ To the extent not addressed in this Order, specific additional technical and operational rules for MTA-based SMR licensees at 800 MHz will be adopted in our final Report and Order in the 800

would total 10 MHz of spectrum, is less than half the amount of spectrum available to cellular and some broadband PCS licensees, and argues that it is the minimum allocation necessary for an SMR licensee to compete with these other services. Nextel also argues that obtaining contiguous spectrum is essential to the competitive viability of wide-area SMR because it enables systems to use spread spectrum and other broadband technologies that are available to cellular and PCS but unavailable to systems operating on non-contiguous channels. Nextel therefore proposes that we distinguish the "upper block" of 200 contiguous SMR channels in the 800 MHz band from the 80 lower SMR channels, which are divided into 8 non-contiguous blocks with other private land mobile services (e.g., Public Safety, Industrial/Land Transportation) assigned to the intervening channels.

103. We agree with Nextel's view that assigning contiguous spectrum, where feasible, is likely to enhance the competitive potential of wide-area SMR providers. For this reason, we believe that Nextel's proposal to distinguish the "upper block" of 200 channels from the "lower" 80 channels for purposes of wide-area licensing has merit. We are not convinced, however, that automatically assigning all 200 channels to a single SMR provider is justified. Numerous commenters contend in response to Nextel's proposal that viable wide-area systems could be based on smaller numbers of channels. Although such systems might not be capable of providing the full array of services offered by a cellular or 30 MHz PCS licensee, these commenters argue, they would be capable of providing specific services on a competitive basis.

104. Because Nextel's proposal to create a 200-channel block for wide-area licensing was not part of our *Further Notice*, we will seek further comment on (1) the number of 800 MHz SMR channels to be licensed on an MTA basis, (2) the number of channels that would be included in a single MTA license block, and (3) whether limits should be placed on the aggregation of channel blocks by a single licensee within an MTA. Based on the record in this proceeding thus far, we believe that the "upper 200" channels should be designated for wide-area licensing on an MTA basis, as Nextel proposes, but that this spectrum should be divided into four blocks of 50 channels. These blocks approximate the 42-channel threshold for frequency reuse identified in the *800 MHz EMSP Notice*, and would allow for the possibility of licensing more than one wide-area provider in each MTA. We would also allow wide-area applicants to bid for any or all of the 50-channel blocks in an MTA, so that the marketplace can determine whether these blocks are most valuable separately or aggregated together.

105. We will also seek comment on continuing to license the "lower" 80 SMR channels on a station-by-station basis. This would ensure that 4 MHz of spectrum continue to be available for licensees who do not seek to construct MTA-wide systems. As discussed in Section III.C.2.b, *infra*, even if we retain station-by-station licensing on these channels, we are eliminating loading requirements and the "40-mile" rule for all 800 MHz SMR licensees. We will, however, limit the number of channels that a licensee may obtain at one time in an area without having constructed and commenced operations on all previously

authorized channels.²⁰¹ In addition, because we intend to adopt extended construction timetables for MTA-licensed systems on the 200 upper channels, we would no longer entertain requests for extended construction authority to establish wide-area systems on the lower 80 channels.²⁰²

(B) Treatment of Incumbent Systems

106. We recognize that the large number of systems already authorized or operating in the band places significant limitations on our ability to provide MTA licensees with clear spectrum comparable to our allocations for cellular or PCS. We also believe that the interests of potential MTA licensees must be balanced against the interests of existing licensees who do not seek to operate on an MTA-wide basis. In our 800 MHz EMSP proposal, we proposed that incumbent licensees be allowed to continue operating under their existing authorizations and that EMSP licensees provide co-channel protection to all such systems constructed and operating within their service areas. Under the approach advocated by Nextel, incumbent systems operating in the "MTA block" would be required to move to lower SMR frequencies, albeit at the MTA licensee's expense, in order to clear the upper band for wide-area use. Based on the record in the 800 MHz EMSP docket and the numerous comments regarding the Nextel proposal, our current assessment is that incumbent SMR systems should not be subject to mandatory relocation to new frequencies and should be entitled to co-channel protection by MTA licensees. Nevertheless, we will seek further comment on Nextel's proposal and on possible alternative mechanisms for encouraging relocation by incumbents.

(iii) Procedural Issues

107. Our decision to implement a wide-area licensing mechanism for 800 MHz SMR and to seek further comment on the issues described above requires us to address briefly several procedural issues. First, as discussed in greater detail in Section III.E.6.d, *infra*, we have decided to use competitive bidding to resolve mutually exclusive applications for 800 MHz licenses. Accordingly, we will not limit eligibility for MTA licenses to existing 800 MHz licensees who are constructing wide-area systems, as Nextel and some other commenters have proposed, but will allow both existing licensees and new entrants to apply on an equal basis without restrictions on eligibility.

108. In addition, because of the fundamental changes we are proposing in the service areas and channel blocks for future licensees in this service, we are suspending the acceptance of 800 MHz applications on the 280 SMR category channels on the close of

²⁰¹ See paras. 192-193, *infra*.

²⁰² See para. 181, *infra*. Under this proposal, we would not restrict SMR licensees from using these channels as part of a larger wide-area system. We would require, however, that all stations authorized on such channels be constructed within 12 months.

business on August 9, 1994, the adoption date of this Order.²⁰³ We will consider requests for waiver of the application freeze for new station licenses for permanent facilities, provided that operation of such proposed stations affects coverage solely within a geographic area and on a frequency channel that already is licensed permanently to the applicant(s), *i.e.*, there is no infringement of new spectrum or previously uncovered geographical areas.²⁰⁴ The waiver applicant bears the burden of demonstrating compliance with these requirements. We will also continue to accept new SMR applications for General Category channels.²⁰⁵ Although it was stated at the time of adoption of this Order that acceptance of these applications would also be frozen,²⁰⁶ we conclude on reconsideration on our own motion²⁰⁷ that it is not practically possible to freeze SMR applications for these channels while continuing to accept and process non-SMR applications for the same channels and that such a freeze is unwarranted given that we do not propose to use these additional channels for MTA licensing.

(2) 900 MHz SMR

(a) Background and Pleadings

109. In the *Further Notice*, we asked comment on whether we should proceed with wide-area licensing in the 900 MHz SMR service based on a proposal originally made in our *900 MHz Phase II* proceeding.²⁰⁸ In this regard, we observed that unlike the 800 MHz SMR band, the 900 MHz SMR band is lightly occupied. This is due to the fact that we have licensed the twenty 10-channel 900 MHz spectrum blocks only within the immediate vicinity

²⁰³ Applications for transfer or assignment of existing SMR facilities will continue to be accepted.

²⁰⁴ This may be the case, for example, when filing for authority within a service area in which an existing facility is "deconstructed" and new facilities are constructed to cover the same coverage area for the purpose of increasing service capacity.

²⁰⁵ See 47 CFR §§ 90.615, 90.621(g).

²⁰⁶ "Regulatory Framework for CMRS Completed," Rpt. No. DC-2638, at 3, Aug. 9, 1994 (FCC news release).

²⁰⁷ See 47 CFR § 1.108.

²⁰⁸ *Further Notice*, 9 FCC Rcd at 2871 (para. 34). See Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and 935-940 MHz Band Allotted to the Specialized Mobile Radio Pool, PR Docket No. 89-553, First Report and Order and Further Notice of Proposed Rule Making, 8 FCC Rcd 1469 (1993) (*900 MHz Phase II Notice*).

of the top 50 markets in the country.²⁰⁹ Furthermore, since licensing began in 1987, we have cancelled a significant percentage of these licenses for failure to construct, so that some channel blocks are available in the majority of these markets as well.

110. Based on these factors, we tentatively concluded in the *Further Notice* that licensing on 900 MHz could readily proceed on an MTA, BTA, and nationwide basis. While acknowledging that the channel blocks available to 900 MHz licensees would afford them less spectrum than is available to 800 MHz SMR, cellular, or broadband PCS licensees, we sought comment on our conclusion that allocating the 900 MHz spectrum in this manner would allow licensees to create viable regional and nationwide CMRS systems.²¹⁰

111. Most commenters support the concept of wide-area licensing for 900 MHz SMR based on MTA service areas. RMD states that such licensing should be the “norm” for 900 MHz SMR because this will give licensees the same flexibility for construction and operation of transmitters afforded to cellular.²¹¹ NABER, AMTA, Geotek, and RAM Tech concur that we should adopt MTA-based licensing, with Geotek arguing that BTAs would be too small a region and AMTA asserting that nationwide licensing is not viable because most of the available channel blocks in major markets are already licensed.²¹² Only Southwestern Bell opposes MTA, BTA, or nationwide licensing for 900 MHz SMR, arguing that such a licensing scheme would give 900 MHz SMR an “advantage over cellular.”²¹³

112. Commenters expressed differing opinions on whether initial eligibility for wide-area licensing at 900 MHz should be limited to incumbent licensees, as we originally proposed in *900 MHz Phase II*. RAM Tech, for example, argues that existing licensees who

²⁰⁹ We allocated 200 channel pairs (12.5 kHz per channel) in the 900 MHz band for the SMR service in 1986 and established a two-phase process for licensing these channels. See Amendment of Parts 2 and 22 of the Commission’s Rules Relative to Cellular Communications Systems, GEN Docket No. 84-1231, Amendment of Parts 2, 15, and 90 of the Commission’s Rules and Regulations To Allocate Frequencies in the 900 MHz Reserve Band for Private Land Mobile Use, GEN Docket No. 84-1233, Amendment of Parts 2, 22, and 25 of the Commission’s Rules To Allocate Spectrum for, and To Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier Services, GEN Docket No. 84-1234, Report and Order, 2 FCC Rcd 1825 (1986). Phase I licensing began in 1987 and was completed in 1992 within the 46 “Designated Filing Areas” (DFAs) representing the top 50 markets in the Nation. Twenty licenses were authorized within each DFA.

²¹⁰ *Further Notice*, 9 FCC Rcd at 2871 (para. 34).

²¹¹ See RMD Comments at 6. See also APACG Comments at 8-9 (recommending wide-area market licensing for 900 MHz paging).

²¹² Geotek Comments at 9-10; AMTA Comments at 17-18.

²¹³ Southwestern Bell Comments at 9-10.

have invested in the "fragmentary" markets licensed to date should be able to expand their systems to MTA borders without being subject to competing applications. Similarly, Geotek and AMTA propose that we allow existing licensees to add base stations to their existing systems as "modifications" that would not be subject to competitive bidding.²¹⁴ APACG, on the other hand, opposes permitting existing licensees to expand their service areas while potential new entrants are barred from applying.²¹⁵

(b) Discussion

113. Based on our view of actual and potential competition in the CMRS market, we conclude that our channel assignment and service area rules for 900 MHz SMR service, like those for 800 MHz, should be comparable to those of cellular and PCS to the extent practical. Although only 5 MHz of spectrum is available in the 900 MHz band, we believe that this service presents significant opportunities for the development of certain types of wide-area mobile voice and data services that could compete with these other services. In addition, the limited amount of prior licensing at 900 MHz makes implementation of wide-area licensing considerably simpler than at 800 MHz, where extensive licensing has already occurred. Therefore, we believe it is appropriate to adopt a final decision with respect to wide-area licensing at 900 MHz. We state our general conclusions in this Order, and will issue specific technical and operational rules for 900 MHz wide-area service in a final Report and Order in the *900 MHz Phase II* proceeding²¹⁶

(i) Service Area

114. In the *900 MHz Phase II Notice*, we proposed to use a combination of nationwide, regional, and local service areas for the "Phase II" roll-out of 900 MHz service.²¹⁷ In the *Further Notice*, we sought further comment on MTA, BTA, and nationwide service areas for 900 MHz licensees in light of the Budget Act's objective of ensuring comparable regulation of substantially similar services. Based on the comments received in

²¹⁴ Geotek Comments at 11-12; AMTA Comments at 17.

²¹⁵ APACG Comments at 7-8.

²¹⁶ Final implementation of wide-area licensing for 900 MHz SMR service requires us to address numerous technical and operational details. (e.g., co-channel interference standards, height and power limitations) that are not essential to the underlying conclusions reached in this Order and that we do not intend to address at this time. Rather than issue skeletal and incomplete rules for 900 MHz SMR service at this point, therefore, we will issue comprehensive final rules in conjunction with our final *900 MHz Phase II* order resolving all outstanding technical and operational issues that remain.

²¹⁷ Our primary proposal was to use nationwide licensing for three 20-channel blocks; regional licensing based on the seven Regional Bell Operating Company (RBOC) regions for six 20-channel blocks, and local licensing for the remaining 20 channels. *900 MHz Phase II Notice*, 8 FCC Rcd at 1472-73 (para. 14).

both proceedings, we conclude that we should modify our proposed *Phase II* approach and use MTAs as the service area for future 900 MHz SMR licensing.²¹⁸ First, we conclude that the limited success of existing 900 MHz systems confined to providing service in DFAs argues against the use of more numerous BTAs or similarly small service areas, which are not substantially larger (and are in some cases smaller) than DFAs in most major markets. We agree with the view of many commenters that MTA licensing is more likely to create opportunities for both existing licensees and new entrants to meet customer demands for wide-area service.

115. We also conclude that using MTAs is preferable to using larger regional service areas or licensing on a nationwide basis, because use of these larger service areas could unnecessarily restrict entry into the 900 MHz market to a very small number of licensees. We find that use of MTAs for licensing of 900 MHz services will promote greater opportunities for entry without foreclosing the possibility of geographic consolidation, subject to Commission review and approval.

(ii) *Channel Blocks*

116. The 900 MHz SMR band is comprised of 20 blocks of 10 contiguous channels each, interleaved with channels assigned to other Part 90 services. In the *900 MHz Phase II Notice*, we proposed to license these channels in 20-channel groups (*i.e.*, combining two 10-channel blocks), with no applicant allowed to acquire more than 40 channels in a given service area.²¹⁹ We conclude that in light of the flexibility conferred by our ability to use auctions, each 10-channel block should be separately licensed and that applicants should be permitted to aggregate blocks if they so desire. We also no longer believe it is necessary to limit licensees to 40 channels in a service area. In our *Phase II* proposal, which preceded the Budget Act, we assumed that we would not be able to select wide-area licensees by auction and that initial eligibility for each channel block would be limited to incumbent DFA licensees with a substantial presence in the relevant service area. As discussed below, we now intend to use auctions to select 900 MHz licensees²²⁰ and will therefore not restrict eligibility for any channel block. Because we are not restricting eligibility, we believe it is appropriate to allow both incumbents and new entrants to bid without restriction for one or more 900 MHz blocks.

²¹⁸ As discussed in note 197, *supra*, Rand McNally has licensed the use of its copyrighted MTA/BTA Listings and maps for certain services such as PCS and 800 MHz SMR. At present, however, 900 MHz SMR service is not covered by this agreement. We encourage interested parties and Rand McNally to explore the extension of the current agreement to cover 900 MHz SMR service as well.

²¹⁹ *900 MHz Phase II Notice*, 8 FCC Rcd at 1472-73 (paras. 13-14).

²²⁰ Specific auction rules and procedures for 900 MHz SMR licensing will be addressed in a subsequent order in our competitive bidding proceeding.

(iii) Scope of Wide-Area Authorizations

117. Consistent with the flexibility granted to cellular and PCS licensees, MTA licensees on 900 MHz channels will be authorized to construct stations anywhere in their MTAs on authorized channels that are available for construction. The MTA license will allow a licensee to expand or modify facilities throughout its service area without further Commission action, so long as the system continues to be in compliance with our technical and operational rules.

(iv) Treatment of Incumbent Systems

118. We conclude that incumbent systems are entitled to full co-channel interference protection for existing facilities, but are not allowed to expand beyond existing service areas unless they obtain the MTA license for the relevant channels. Even if we were to decide that mandatory relocation of incumbents was appropriate for 800 MHz SMR licensees, we conclude that it is not feasible in the 900 MHz band because no alternative 900 MHz SMR channels are available for relocation. Of course, MTA licensees may negotiate mergers, buyouts, frequency swaps, or similar arrangements with incumbent systems on a voluntary basis.

119. In a few instances, incumbent 900 MHz licensees have been granted authorizations to construct facilities outside of their DFAs in order to link their facilities in different markets. We will require MTA licensees to afford protection to all such sites licensed prior to August 10, 1994. Although these authorizations were originally granted on a secondary basis, we conclude that it would be unduly disruptive to existing 900 MHz operations to require incumbent licensees to discontinue operation at these sites. We note, however, that we will not allow additional secondary site authorizations in this band.

(3) Paging

(a) Background and Pleadings

120. In the *Further Notice*, we observed that our rules for assigning common carrier and private carrier paging frequencies in the 900 MHz band are somewhat similar, while the rules for lower-band paging frequencies differ in that common carrier frequencies are assigned on an exclusive basis while private paging frequencies are assigned on a shared basis. We asked whether any additional rule modifications were appropriate to further conform the paging rules for the private and common carrier services. In addition, we requested comment on whether we should use Commission-defined areas for licensing paging channels instead of defining service area on a station-by-station basis as we do currently.

121. Four commenters expressed views on this issue. PCIA favors granting local, regional and nationwide exclusivity for common carrier paging systems along the lines

adopted for 900 MHz PCPs in the *900 MHz PCP Exclusivity Order*.²²¹ PageNet suggests adopting market area licensing for all 929-930 MHz and 931-932 MHz paging systems, with the 929-930 MHz systems based on state boundaries and 931-932 MHz systems based on MTAs. PageNet contends that this will increase opportunities for channel aggregation across all 900 MHz frequencies in common service areas, thereby “enabling providers to develop a common, multiple frequency infrastructure.”²²² NABER also supports the use of MTA/BTA licensing for Part 22 paging services, but would not convert PCP licensing to MTAs or BTAs at this time because of the ongoing nature of implementing exclusivity under the *900 MHz PCP Exclusivity Order*. Finally, APACG believes that because changes to our paging rules are already at issue in the *Part 22 Rewrite* docket and the pending reconsideration of the *900 MHz PCP Exclusivity Order*, additional changes should not be made at this time in this docket.²²³

(b) Discussion

122. We concur with the assessment made by APACG that this is not the appropriate time to further modify the rules governing service areas and channel assignment in the common carrier and private carrier paging services. In our *Part 22 Rewrite Order*, we concluded that the concept of market-based service areas for 931-932 MHz paging has merit but that the issue requires further study and comment.²²⁴ In the 929-930 MHz band, we are now implementing the exclusive licensing scheme adopted in the *900 MHz PCP Exclusivity Order*, which allows applicants to earn exclusivity for their systems on a local, regional, or nationwide basis, depending on system size and configuration. We will therefore defer further action in this area for the time being. We intend to examine our paging rules in a future proceeding, however, to determine whether further conforming of our rules is feasible.

(4) 220 MHz Service

(a) Background and Pleadings

123. In the *Further Notice*, we sought comment on whether and to what extent we should revise our channel assignment and service area rules for the 220 MHz service to achieve comparability between this service and other competitive CMRS services. In this context, we incorporated into our proceeding a Request for Declaratory Ruling filed by

²²¹ PCIA Comments at 11. PCIA plans to file a formal petition with the Commission outlining such a proposal.

²²² PageNet Comments at 15.

²²³ APACG Comments at 8.

²²⁴ *Part 22 Rewrite Order*, at para. 11.

SunCom, which seeks Commission approval of a plan to aggregate non-nationwide 220 MHz five-channel blocks on a regional basis to provide multiple-market service on a single system.²²⁵ We invited comment on whether the statutory goals at issue in this proceeding would be furthered by permitting regional 220 MHz licensing.

124. Some commenters support the concept of regional licensing in the 220 MHz service. For example, NABER suggests that BTA or MTA licensing could be implemented without having an impact on existing licensees.²²⁶ Simrom believes that if the Commission determines that 220 MHz service is substantially similar to narrowband PCS, it should “move expeditiously to adopt a PCS-like, area-based licensing system.”²²⁷ AMTA proposes a regional licensing scheme whereby licensees would be entitled to aggregate up to eight 5-channel blocks on multi-market basis provided that they committed to construction of at least 40 sites and made the same type of financial showing as is currently required of nationwide 220 MHz applicants.²²⁸

125. Commenters have diverse views with respect to SunCom’s declaratory ruling petition to allow local 220 MHz licensees to aggregate channels and combine service areas to create a regional or nationwide network. USM supports SunCom’s view that 5-channel stand-alone systems at 220 MHz are not economically viable, and asserts that “the only potential for successful utilization of a five-channel commercial narrowband license is as part of a multi-site system offering full market coverage and a depth of channel capacity.”²²⁹ SmartLink, however, contends that it is premature to conclude that local 5-channel systems are not viable, although it does not object to implementing SunCom’s proposal in the future after the 220 MHz market has had a chance to develop.²³⁰ Global and SEA argue that

²²⁵ See *Further Notice*, 9 FCC Rcd at 2872 (para. 38). SunCom’s Request for Declaratory Ruling deals with Section 90.739 of the Commission’s Rules, which provides that no 220 MHz licensee may be authorized to operate multiple stations in the same service category (e.g., 5-channel non-nationwide) within 40 miles of the operations of another 220 MHz operator “unless that licensee can demonstrate that the additional system is justified on the basis of its communications requirements.” SunCom also filed a request for waiver of the eight-month construction period for non-nationwide 220 MHz systems, proposing an eight-year period for the construction of its system. In its comments in this proceeding, SunCom revised its waiver request to reduce its construction schedule from eight to five years. SunCom Comments at 3.

²²⁶ NABER Comments at 24-25.

²²⁷ Simrom Comments at 8.

²²⁸ AMTA Comments at 25-27.

²²⁹ USM Comments at 4-5.

²³⁰ SmartLink Comments at 6-7.

SunCom is seeking to establish a nationwide 220 MHz system outside the Commission's procedures for doing so.²³¹

(2) Discussion

126. In adopting the rules for 220-222 MHz service in 1991, we stated that service was intended for two-way narrowband usage "to provide an incentive for users to develop narrowband technology to facilitate efficient channelization."²³² To encourage this technology to develop, we allocated 220-222 MHz spectrum for local licensing, using both trunked and non-trunked operations, and allowed trunked systems to acquire up to five channels at a single station location. In examining the rules governing channel assignments and service areas for 220-222 MHz service in light of the statutory goals of this proceeding, we conclude that there is no need to modify or conform these rules to rules applicable to other CMRS services.

127. While we have identified 220 MHz service as potentially competitive with and therefore substantially similar to other CMRS services for purposes of establishing comparable technical and operational rules, the service is still in its infancy and its competitive potential largely unknown.²³³ Based on these findings, we conclude that no change to our 220 MHz rules is required in this proceeding to ensure regulatory symmetry. We also believe that a more comprehensive record is needed before we consider implementing a new licensing scheme based on different sized channel blocks or service areas. We therefore intend to initiate a separate proceeding in the near future to address these issues in the 220 MHz service.²³⁴

²³¹ Global Comments at 7; SEA Comments at 11.

²³² Amendment of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Services, PR Docket No. 89-552, Report and Order, 6 FCC Rcd 2356 (para. 9) (1991)(220 MHz Order), *recon.*, 7 FCC Rcd 4484 (1992).

²³³ We began receiving applications for 220-222 MHz licenses on May 1, 1991, and stopped accepting such applications on May 25, 1991. *See* Acceptance of 220-222 MHz Private Land Mobile Applications, Order, 6 FCC Rcd 3333 (Priv.Rad.Bur. 1991) (terminating acceptance of 220-222 MHz applications). In June 1992, certain aspects of our 220 MHz application procedures were appealed to the United States Court of Appeals, causing us to condition all local 220 MHz license grants on the outcome of the appeal. The appeal was dismissed in March 1994, at which time we granted an extension until December 2, 1994 for construction of all previously granted non-nationwide 220 MHz authorizations. *See* Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services, PR Docket No. 89-552, Order, 9 FCC Rcd 1739 (Priv.Rad.Bur. 1994).

²³⁴ As discussed in para. 184, *infra*, however, we are taking limited action in this proceeding to modify the current December 2, 1994, construction deadline.

128. Because we have incorporated the SunCom declaratory ruling petition into this proceeding, however, we will address some of the issues raised in the petition and responding comments. Unlike SunCom and certain other commenters, we believe it is premature to assume that 5-channel stand-alone 220 MHz service is not viable at the local level. To the contrary, we believe that the potential exists for local systems to prosper by using spectrum efficient narrowband technologies and offering a competitively priced alternative for mobile customers who do not require more costly services offered by other CMRS providers. We agree with SunCom, however, that there is potential benefit in allowing local 220 MHz licensees to aggregate more than five channels in a given market in order to meet the particular mobile communications needs of that market.

129. We note that our existing rules already provide 220 MHz licensees with flexibility to establish multi-market regional systems in this service where demand exists. Section 90.739 of our rules states that no local 220 MHz licensee will be licensed for more than one 220-222 MHz system in a given category (*i.e.*, trunked or conventional) within 40 miles of another system authorized to that licensee in the same category. Thus, this rule ordinarily limits an individual trunked system licensee to operating “stand-alone” 5-channel systems at least 40 miles apart. The rule does permit additional channels to be licensed within the 40-mile limit, however, if the licensee can “demonstrate that the additional system is justified on the basis of communications needs.” In the *220 MHz Order*, we indicated that such a showing should normally be supported by documentation of the need for additional channel capacity and/or an expanded service area, based on customer demand or other technological or economic factors.²³⁵ We also noted that any applicant seeking to invoke this exception *prior* to the construction of an initial system in the relevant area would face a heavy burden of proof.²³⁶ We believe this continues to be an appropriate standard for requests for exemption from the 40-mile limit under Section 90.739. We therefore will generally not allow aggregation of channels by 220 MHz licensees who have not completed initial construction of their facilities, but will permit licensees who have already constructed and commenced operations to aggregate channels based on an appropriate showing under Section 90.739. Because SunCom seeks to aggregate channels assigned to licensees who have not yet completed construction, we deny its request for declaratory ruling. We also conclude that SunCom has not demonstrated the existence of extraordinary circumstances that would justify grant of an extended construction period to licensees who agree to become part of SunCom’s network. Accordingly, SunCom’s request for waiver of our construction rules is also denied.

b. Co-Channel Interference Protection

(1) *Background and Pleadings*

²³⁵ *220 MHz Order*, 6 FCC Rcd at 2364, 2375 (para. 59 n.126).

²³⁶ *Id.* at 2364 (para. 59).

130. For most mobile services in which we assign channels exclusively to one licensee in each area, our rules contain technical assignment criteria intended to minimize the likelihood of interference between the co-channel facilities of different licensees. Although applicants are generally required to demonstrate in their applications that a proposed facility would meet these co-channel technical criteria, we also routinely authorize facilities that do not meet the criteria, provided that the applicant has obtained the consent of all other affected applicants and licensees.²³⁷ In some mobile services *e.g.*, the Public Land Mobile Service, 800/900 MHz SMR and local 220-222 MHz service, the area in which a licensee is entitled to exclusive use of its assigned channel is determined by the locations of its individual base stations.

131. The technical co-channel interference criteria for these services typically involve minimum desired-to-undesired field strength ratios, prohibition on the overlap of service and interfering contours, or geographical separation requirements, all of which are used to determine the minimum allowable distance between co-channel base stations of different licensees. In the cellular service and in PCS, each licensee is entitled to exclusive use of its assigned spectrum within a Commission-defined licensing area (*e.g.*, MSAs, RSAs, MTAs, BTAs).²³⁸ Under these circumstances, rules designed to limit co-channel interference to other licensees need apply only to transmitter sites near the licensing area boundaries. For stations that we exclusively assign a channel nationwide (*e.g.*, 931 MHz nationwide network paging), co-channel interference rules are necessary only at international borders.

132. In the *Further Notice*, we sought comment as to which, if any, of these existing co-channel interference criteria should be revised in order to satisfy the statutory goal of comparable technical regulations for substantially similar services. Noting that changes to these criteria, if adopted, could affect the placement of stations and selection of equipment, we sought specific comment on the potential economic impact of such changes on existing licensees. We also noted that in our previous proposals for wide-area licensing of 800 and 900 MHz SMR, we proposed to apply co-channel protection rules only to stations located near the wide area service boundaries. We sought comment on whether this approach was consistent with the goal of comparable technical regulation for substantially similar services.²³⁹

²³⁷ This consent generally takes the form of mutual agreements to "accept interference" from particular transmitter sites.

²³⁸ In the cellular service, the original licensees in each Commission-defined licensing area on each channel block are afforded a five-year period during which they enjoy an exclusive right to their assigned spectrum throughout the licensing area. After the five-year period expires, however, these licensees and additional new licensees are entitled to exclusive use of their assigned spectrum only in an area (called the "CGSA") which is based on the area they actually serve.

²³⁹ *Further notice*, 9 FCC Rcd at 2872-73 (paras. 40-41).

133. Some commenters propose uniform interference criteria for services they consider to be substantially similar.²⁴⁰ Pittencrieff states that there should be no difference in the co-channel interference standards imposed on cellular and wide-area SMR systems, and encourages adoption of a stricter 40/17 dBu standard for SMR systems, which Pittencrieff claims is necessary accomplish this conformance.²⁴¹ NYNEX also states that Part 90 licensees should be subject to the same co-channel technical requirements as cellular carriers.²⁴² APACG supports conforming the co-channel separation rules for all 900 MHz paging licensees to the maximum extent possible.²⁴³

134. Many other commenters express concern that in some CMRS services, imposing uniform interference criteria would cause disruption and economic harm to licensees.²⁴⁴ GTE argues that although different CMRS providers may currently be subject to different rules, the burden of modifying existing facilities to comply with a uniform co-channel interference protection criteria would outweigh any concomitant benefit.²⁴⁵ ITA/CICS claims that implementing significant changes to existing co-channel separation rules would cause confusion and could lead to co-channel interference that exceeds acceptable levels.²⁴⁶

135. Several commenters specifically oppose changes to our existing co-channel protection standards for SMR operations. Southern states that the Commission should maintain existing co-channel interference protection for all 800 MHz SMR licensees because millions of dollars have been invested in developing existing wide-area SMR systems, that conform with current co-channel interference rules.²⁴⁷ AMTA suggests that the Commission retain existing Part 90, Subpart S co-channel separation criteria for wide-area SMR operations because these criteria will allow a gradual migration from high-power, high-antenna height operation to low-power, low-antenna height facilities and permit both kinds of

²⁴⁰ Pittencrieff Comments at 8; NYNEX Comments at 3.

²⁴¹ Pittencrieff Comments at 8.

²⁴² NYNEX Comments at 3.

²⁴³ APACG Comments at 9.

²⁴⁴ Southern Comments at 9 (800 MHz only); ITA/CICS Comments at 6; UTC Comments at 3; AMTA Comments at 16 (wide-area SMR only); GTE Comments at 10; Motorola Reply Comments at 7.

²⁴⁵ GTE Comments at 10.

²⁴⁶ ITA/CICS Comments at 6.

²⁴⁷ Southern Comments at 9.

facilities.²⁴⁸ UTC argues that co-channel interference criteria should not be modified for CMRS SMR operators who operate on the same channels as utilities, pipelines, and other specialized industrial users.²⁴⁹

136. Many commenters favor adoption of co-channel interference rules that limit field strength at licensing area borders but allow flexibility in the interior of the areas for which they are exclusively licensed.²⁵⁰ RMD states that using this approach for most or all CMRS services would be consistent with rules applicable to cellular and PCS operations and would further the comparable regulation purposes of the Budget Act.²⁵¹ Geotek argues that licensees should have substantial flexibility to determine station power and other technical and operational parameters for facilities located within the interior of their licensing area.²⁵² PageNet, addressing 900 MHz paging operations, supports the use of a mathematical formula such that at a given distance from the border, a licensee could determine the maximum allowable combination of transmitter power and antenna height that would provide the required level of protection at the licensing area boundary.²⁵³

137. Commenters also note that there may be practical limitations to the use of service-area border standards in Part 90 services, however. PCC suggests that interference be regulated at the licensed boundary of a wide-area service, but only if the licensee has exclusive use of its channels throughout the area.²⁵⁴ NABER asserts that co-channel interference criteria at the border of the service area is appropriate for service-area based licensees, but that current interference rules should be retained in those Part 90 services where transmitter-based licensing is retained.²⁵⁵

(2) Discussion

138. Initially, we note that the technical limits and criteria in our rules were originally developed in consideration of the state of technology and conditions under which each service

²⁴⁸ AMTA Comments at 16.

²⁴⁹ UTC Comments at 3.

²⁵⁰ Geotek Comments at 16; PCC Comments at 7; RMD Comments at 8; PageNet Comments at 19; NABER Comments at 12.

²⁵¹ RMD Comments at 8.

²⁵² Geotek Comments at 16.

²⁵³ PageNet Comments at 19.

²⁵⁴ PCC Comments at 6.

²⁵⁵ NABER Comments at 25.

was expected to operate at the time it was established. From time to time, we have refined these rules to reflect technological advancement and evolution in the way the services operate. Relatively recent technological advancements include the increasing use of digital emissions and modulation techniques, and one of the more significant evolutionary trends in service operation is the expansion of local services to provide wide area operations. A second point we must bear in mind, in considering major changes to our technical rules, is that many of the various technical rules are both inter-related and inter-dependant. Therefore, we should not consider changes to these rules in isolation, but rather we should consider the potential overall effect of all changes to the technical rules.

139. We find considerable agreement in the record that the purpose of co-channel interference rules is to protect the service of each licensee's facilities from interference caused by operation of co-channel facilities of *other licensees operating in adjacent areas*, not from interference caused by the licensee's own facilities. Thus, we do not need rules to address intra-system interference problems; rather, we should allow a licensee to resolve its internal co-channel interference problems by employing the technical solutions the licensee finds appropriate. This position mainly affects rules governing services that were originally envisioned as local services provided by stand-alone stations operating in a co-channel environment of stand-alone stations operated by other licensees, but are now evolving into multi-station systems covering a wide area. We conclude that, if and when we redesign our rules and licensing processes to facilitate wide-area or market area based licensing of a service that was originally envisioned as comprising local stand-alone stations, we will at that time remove rules that govern co-channel interference on a station-by-station basis, and adopt only rules as needed to prevent unacceptable co-channel interference between licensees at the boundary of their exclusively licensed area.

140. Our main purpose here is to consider whether disparities between rules governing various CMRS services unnecessarily impair competition. After careful consideration of these rules and the record in this proceeding we conclude that, for the most part, our existing co-channel interference rules are necessary and that these existing rules do not impair competition.

141. We believe that the principal areas in which co-channel interference rules may affect competition are in the technical quality of the service provided to subscribers and in the cost of compliance. In industry surveys, voice quality (*i.e.*, intelligibility, freedom from noise) is often listed by subscribers as one of the most important factors influencing their decisions when obtaining equipment or services. In paging services, quality refers to reliable and timely delivery of transmitted messages. Co-channel interference rules, regardless of their form, are designed to ensure technical quality by requiring that the ratio of the field strength of the desired signal to that of undesired signals (C/I,²⁵⁶ or in noise limited services,

²⁵⁶ Carrier-to-interference ratio.

C/N²⁵⁷) within a licensee's service

area does not drop below that considered necessary to provide satisfactory service. Where frequency modulation is used for radiotelephony (as in cellular or SMRs for example), industry experience has indicated that a minimum C/I or C/N of 18 dB is necessary.²⁵⁸

Existing cellular services meet this standard in considering reliable service to be provided with a median field strength of 32 dB μ V/m (18 dB above a 14 dB μ V/m noise floor at 850 MHz).²⁵⁹ SMR services that comply with the Subpart S 40/22 dB μ V/m standard, while noise limited, also meet the 18 dB C/I criterion (40 dB μ V/m - 22 dB μ V/m = 18 dB). Other existing CMRS co-channel interference standards require similar or better C/I ratios. In summary, all existing co-channel interference standards provide for acceptable technical quality, and none of them allows an unacceptable level of interference that would degrade technical quality.

142. Compliance with co-channel rules does impose costs on licensees. These costs, however, are small in comparison with the overall costs of operating a communications system. Furthermore, there is no indication in the record that there is any significant difference between the cost of compliance for the different co-channel interference rules.

143. Accordingly, we have decided to retain existing co-channel protection rules for CMRS services, except for modifications that flow from our decisions to initiate wide-area licensing in certain services. As indicated *supra*, the purpose of this proceeding is to eliminate unnecessary variances in technical and operational rules that may distort competition among CMRS providers. The record does not indicate that the existing rules create such distortion; to the contrary, commenters indicate that service-specific variations in these rules merely reflect such factors as propagation characteristics, system design and available equipment, and the service area definitions and channel assignment mechanisms that are most suitable in each service. The record also shows that conforming these rules to a uniform standard would be costly and potentially disruptive without yielding any corresponding benefit.

144. We believe the guiding principle for all CMRS services should be the use of service-specific criteria that protect co-channel licensees from interference, but do not impair competition. For example, where CMRS services have been licensed on a station-by-station basis, station-based interference criteria continue to be required to protect co-channel licensees even if such services compete against licensees who operate exclusively within Commission-defined licensing areas. We also see no justification for applying interference

²⁵⁷ Carrier-to-noise ratio.

²⁵⁸ Empirical studies show that 18 dB C/N or C/I provides a demodulated FM voice quality considered good or excellent 90 percent of the time. See W. Lee, *MOBILE CELLULAR TELECOMMUNICATIONS SYSTEMS* 378 (1989).

²⁵⁹ *Id.* at 229-31.

criteria that would reduce the technical flexibility enjoyed by existing licensees solely in the interest of conforming such rules to those of a competing service that operates under different conditions.

145. Based on the foregoing, we conclude that we should retain our existing co-channel protection criteria for CMRS licensees, except in certain instances discussed below where other changes adopted in this Order allow for the introduction of more flexible rules. Specifically, we will continue to apply our existing co-channel protection criteria to services that are licensed on a station-by-station basis. With respect to cellular, we will maintain the current rules that apply only to transmitting locations near the boundaries of their licensed areas. We further conclude that this approach should be adopted for wide-area licensing of 800 and 900 MHz SMR operations and for any other CMRS service in which we may introduce exclusive licensing areas in the future.²⁶⁰ To the extent that incumbent SMR systems in the 800 MHz and 900 MHz MTA blocks are entitled to continued co-channel protection, however, MTA licensees will also continue to be subject to station-specific interference criteria.

c. Antenna Height and Transmitter Power Limits

(1) *Background and Pleadings*

146. The Communications Act provides that the Commission has authority to limit the transmitting power of stations.²⁶¹ With regard to CMRS offerings, our current rules specify a maximum power limit for stations in each service, but allow operation at lower power levels.²⁶² Although the rules do not limit antenna heights, except as may be required for environmental or air navigation considerations, they generally require that stations employing a relatively high antenna height operate at reduced transmitting power.

147. The *Further Notice* sought comments on whether the statutory goal of regulatory parity requires antenna height and transmitter power limits to be amended for base stations operating in 800/900 MHz cellular and SMR services, 900 MHz Part 22 and Part 90 paging services, and Part 22 and Part 90 mobile services below 800 MHz. We stated our belief that in general, CMRS services should operate under consistent height and power limitations that encourage technical flexibility and allow licensees to serve diverse customer needs. The *Further Notice* also requested comments on power limitations for mobile and portable units

²⁶⁰ We will outline our decisions with regard to appropriate field strength limits at MTA borders for 800 and 900 MHz licensees in our final orders in the 800 MHz EMSP and 900 MHz Phase II dockets, respectively. See notes 200, 216, *supra*.

²⁶¹ Communications Act, § 303(c), 47 U.S.C. § 303(c).

²⁶² In the Mass Media Services, we also specify a minimum transmitting power. See, e.g., 47 CFR §§ 73.211, 73.614.